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EXAMINER	
ZHONG, JUN FEI	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/684,138	BARRETT ET AL.	
	Examiner	Art Unit	
	JUN FEI ZHONG	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6,12-42 and 47-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6,12-42 and 47-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/7/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/6/2008 has been entered.

Response to Amendment

2. This action is responsive to an Amendment filed 6/6/2008. Claims 1-3, 6, 12-42, 47-56 are pending. Claims 1, 6, 13, 17, 23, 33, 35, 41, 48 are amended. Claims 4-5, 7-11, 43-46 are cancelled. Claim 56 is new. The examiner hereby withdraws the rejections of claim 33 under 35 USC 112, second paragraph, in light of the amendment.

Response to Arguments

3. Applicant's arguments with respect to claims 1-3, 6, 12-42, 47-56 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 13-15, 17-25, 27-42, 47-55 are rejected under 35 U.S.C. 103(a) as being unpatentable by Mao (Patent # US 6,728,965 B1) in view of Emura (Patent # US 5732217), and further in view of Reitmeier (Patent # US 6118498).

As to claim 23, Mao discloses a channel change server (e.g., broadband digital terminal (BDT) 12) comprising:

retained intra frames for a plurality of video streams (e.g., FIFO buffer 50 stores I frame; Fig. 7), each respective video stream of the plurality of video streams associated with a respective channel of a plurality of channels (see col. 8, lines 14-36);

a channel change request detector that is capable of detecting channel change requests from individual clients of a plurality of clients (e.g., broadband digital terminal (BDT) 12 receives channel change request from user) (see col. 5, lines 51-65);

a channel change request handler (e.g., broadband digital terminal (BDT) 12) that is configured to respond to a detected channel change request from a particular client of the plurality of clients by extracting a retained intra frame of a video stream associated with a requested channel from the retained intra frames (see col. 6, lines 16-29; col. 8, lines 36-58);

transmitting the extracted retained frames to the particular client using a unicast communication and by joining the video stream associated with the requested channel

at a next intra frame for dynamic display of the next intra frame and a plurality of subsequent dependent frames using a multicast communication (e.g., channel changer 10 stores minimum one I frame and fourteen P and B frames, when subscriber request channel change, channel change server 10 transmit buffered I frame and P and B frames of requested channel to subscriber, synchronize subscriber with broadcasting video signal) (see col. 5, lines 51-65; col. 8, line 36-col. 9, line 25)

Mao does not specifically disclose transmitting the extracted retained intra frame and no dependent frames to the particular client using a unicast communication.

Emura discloses transmitting the extracted retained intra frame (e.g., keyframe) and no dependent frames to the particular client using a unicast communication (see col. 16, line 66 through col. 17, line 20; Fig. 3B, 14, 16A).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit retained intra frame and no dependent frames as taught by Emura to the channel change system of Mao in order to perform a high-speed playback at a playback speed requested from a terminal apparatus (see col. 6, lines 29-32).

Mao and Emura fail to disclose statically display I frame.

Reitmeier discloses statically display I frame (e.g., display still image of I frame during channel change) (see col. 9, lines 31-54; Fig. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to display static I frame as taught by Reitmeier to the channel change system of Mao as modified by Emura in order to provide a method and

apparatus for providing a rapid, or seemingly rapid, channel change or channel acquisition capability in a ATSC television receiver (see col. 2, lines 8-11).

As to claim 13, this claim contains the limitation "cached" instead of "retained" in claim 23. Thus, claim 13 is analyzed as previously discussed with respect to claim 23 above.

As to claims 35, and 41, they contain the limitations of claim 23 and are analyzed as previously discussed with respect to claim 23 above.

As to claim 48, Mao discloses a system comprising:

at least one processor (e.g., processor 55; Fig. 7);

one or more media (e.g., buffer memory 50 or 57) including processor-executable instructions that are capable of being executed by the at least one processor (e.g., BDT 12 can be equipped with element management system 13 which is software based) (see col. 3, lines 34-41), the processor-executable instructions adapted to direct the system to perform actions comprising:

multicasting a plurality of channels (see col. 8, lines 59-64);

retaining at least one intra frame for each channel of the plurality of channels (see col. 8, lines 14-36);

joining the multicast communication by providing a subsequent independent frame and a plurality of subsequent dependent frames for dynamic display (e.g.,

channel changer 10 stores minimum one I frame and fourteen P and B frames, when subscriber request channel change, channel change server 10 transmit buffered I frame and P and B frames of requested channel to subscriber, synchronize subscriber with broadcasting video signal) (see col. 5, lines 51-65; col. 8, line 36-col. 9, line 25)

Emura discloses transmitting a retained intra frame (e.g., keyframe) and no dependent frames for a requested channel as a unicast communication (see col. 16, line 66 through col. 17, line 20; Fig. 3B, 14, 16A).

Reitmeier discloses statically display I frame (e.g., display still image of I frame during channel change) (see col. 9, lines 31-54; Fig. 3).

As to claim 24, Mao discloses the channel change server as recited in claim 23, further comprising:

a video stream buffer (e.g., FIFO buffer 50 stores video stream from multiple channels; Fig. 5 and 7) that is adapted to buffer each video stream of the plurality of video streams to create a plurality of respective buffered portions (see col. 8, lines 14-36 and 59-64).

As to claim 25, Mao discloses the channel change server as recited in claim 23, further comprising:

a join command issuer (e.g., BDT 12) that is adapted to send a join message (e.g., confirmation signal) to a replication point (e.g., broadband network unit (BNU) 14;

Fig. 1) to cause the replication point to join the particular client to a multicast group corresponding to the requested channel (see col. 6, lines 16-29).

As to claim 27, Mao discloses the channel change server as recited in claim 23, further comprising:

a synchronization determiner (e.g., processor 55) that is adapted to synchronize a multicast joining operation for the particular client to a multicast group corresponding to the requested channel with regard to a next decodable frame (e.g., I frame) of the video stream associated with the requested channel (see col. 8, lines 42-51; Fig. 5 and 7).

As to claim 28, Mao discloses the channel change server as recited in claim 27, wherein the synchronization determiner (e.g., processor 55) is further adapted to synchronize the multicast joining operation for the particular client to the multicast group corresponding to the requested channel using a quasi-predicted time (e.g., instantly) of the next decodable frame of the video stream associated with the requested channel (see col. 8, lines 42-51; Fig. 5 and 7).

As to claim 29, Mao discloses the channel change server as recited in claim 27, further Comprising:

a time-delayed buffered portion (e.g., FIFO buffer 50 stores minimum 15 frames for each channel) of the video stream that is associated with the requested channel (see col. 8, lines 37-42);

wherein the synchronization determiner (e.g., processor 55) is further adapted to synchronize the multicast joining operation for the particular client to the multicast group corresponding to the requested channel with regard to the time-delayed buffered portion (e.g., FIFO buffer 50 stores minimum 15 frames for each channel; Fig. 5) of the video stream that is associated with the requested channel (e.g., processor 55 is always pointing to I frames store in FIFO buffer 50, when a channel change request received, it can instantly transmit I frame to user) (see col. 8, lines 36-51).

As to claim 30, Mao discloses the channel change server as recited in claim 29, wherein a size of the time-delayed buffered portion (e.g., FIFO buffer 50 stores minimum 15 frames for each channel; one group of picture (15 frames) in MPEG-2 standard is about half second) corresponds to a time period (e.g., half second or more) consumed when joining the particular client to the multicast group corresponding to the requested channel (see col. 8, lines 4-13 and 36-42).

As to claim 31, Mao discloses the channel change server as recited in claim 29, wherein a size of the time-delayed buffered portion (e.g., FIFO buffer 50 stores minimum 15 frames for each channel) corresponds to a combination of a multicast joining time (i.e., transmitting time) and an intra frame interval duration (e.g., one group

of picture (15 frames) in MPEG-2 standard is about half second) (see col. 7, lines 39-57; col. 8, lines 36-51; Fig. 5 and 6).

As to claim 32, Mao discloses the channel change server as recited in claim 29, wherein a joining time (i.e., transmitting time) of the time-delayed buffered portion (e.g., FIFO buffer 50 stores minimum 15 frames for each channel) corresponds to a time period consumed when joining the particular client to the multicast group corresponding to the requested channel (see col. 7, lines 39-57; col. 8, lines 36-51; Fig. 5 and 6).

As to claim 33, Mao discloses the channel change server as recited in claim 29, wherein the synchronization determiner (e.g., processor 55) is further adapted to determine that a join command (e.g., confirmation signal) is to be issued when the synchronization determiner ascertains that the next decodable frame is subsequent to a joining time (e.g., transmitting time; i.e., signal transmitting time between user and BDT) of the time-delayed buffered portion (e.g., FIFO buffer 50 stores minimum 15 frames for each channel) of the video stream that is associated with the requested channel (see col. 7, lines 39-57; col. 8, lines 36-51).

Mao does not specifically disclose when to issue the join command.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to choose any time as the send command time after the channel change request received in order to minimize the waiting time for synchronize frame.

As to claim 34, Mao discloses the channel change server as recited in claim 29, wherein the synchronization determiner (e.g., processor 55) is further adapted to prompt issuance of a join command (e.g., confirmation signal), time-delayed buffered portion (e.g., FIFO buffer 50 stores minimum 15 frames for each channel) of the video stream that is associated with the requested channel even if the extracted retained intra frame of the video stream associated with the requested channel has not been fully delivered to the particular client using the unicast communication (e.g., the confirmation signal does not depending on the I frame transition) (see col. 6, lines 16-29; col. 7, lines 39-57; col. 8, lines 36-51).

Mao does not specifically disclose when to issue the join command.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to choose any time as the send command time after the channel change request received in order to minimize the waiting time for synchronize frame.

As to claims 14-15, and 17-20, they contain the limitations of claims 24-25, 27-30 and are analyzed as previously discussed with respect to claims 24-25 and 27-30 above.

As to claim 21, it contains the limitations of claim 33 and is analyzed as previously discussed with respect to claim 33 above.

As to claim 22, it contains the limitations of claim 34 and is analyzed as previously discussed with respect to claim 34 above.

As to claim 36, Mao discloses the arrangement as recited in claim 35, further comprising:

buffer means (e.g., FIFO buffer 50 stores minimum 15 frames for each channel) for buffering each respective video stream of the plurality of video streams to establish a respective buffered portion for each respective video stream;

synchronization means (e.g., processor 55) for synchronizing a joining of the client to the second multicast group (i) with reference to a respective buffered portion (e.g., minimum 15 frames stored for each channel) for the respective video stream that is associated with the requested channel and (ii) with regard to a next decodable frame of the respective video stream that is associated with the requested channel (e.g., I frame location) (see col. 8, lines 36-51; Fig. 5).

As to claim 37, Mao discloses the arrangement as recited in claim 36, further comprising:

issuance means (e.g., BDT 12) for issuing a join command (e.g., confirmation signal) responsive to the synchronization means (see col. 6, lines 16-29).

As to claim 38, Mao discloses the arrangement as recited in claim 35, wherein the retention means (e.g., buffer 50) comprises at least one of (i) buffering means for

buffering the at least one intra frame for each video stream of the plurality of video streams and (ii) caching means for caching at least one intra frame for each video stream of the plurality of video streams (e.g., FIFO buffer 50 stores video data for each channel) (see col. 8, lines 14-36; Fig. 5).

As to claim 39, Mao discloses the arrangement as recited in claim 35, wherein the arrangement comprises at least one server (e.g., EMS 13 is located at service provider facility and function as a server) (see col. 3, lines 34-41; Fig. 1).

As to claim 40, Mao discloses the arrangement as recited in claim 35, wherein the arrangement comprises one or more processor-accessible media (e.g., buffer 50 stores more than one video frame for each channel) (see col. 8, lines 36-42).

As to claim 42, Mao discloses the server as recited in claim 41, wherein the server is capable of multicasting the plurality of video channels to the clients (e.g., BDT 12 can connect numbers of BNU 14) (see col. 4, lines 22-26; Fig. 1).

As to claim 47, Mao discloses the server as recited in claim 41, wherein the server is further adapted to issue a join command (e.g., confirmation signal) irrespective of a complete or an incomplete delivery to the requesting client of the retained at least one independent frame of the requested video channel (see col. 6, lines 16-29).

As to claim 49, Mao discloses the system as recited in claim 48, wherein the system comprises a video provider (e.g., video data transmit to BDT 12 over ATM network) and a channel change server (e.g., BDT 12) (see col. 3, lines 42-46).

As to claim 50, Mao discloses the system as recited in claim 48, wherein the system comprises a video provider and a channel change server that are co-located (see col. 3, line 66 through col. 4, line 6).

As to claim 51, Mao discloses the system as recited in claim 48, wherein the system comprises a channel change server (e.g., BDT 12) that receives the plurality of channels from a video provider; and wherein the channel change server performs the action of multicasting the plurality of channels (e.g., BDT 12 can connect numbers of BNU 14) (see col. 7, lines 62-65; col. 4, lines 22-26; Fig. 1).

As to claim 52, Mao discloses the system as recited in claim 48, wherein the processor-executable instructions (e.g., element management system 13 which is software based) are adapted to cause the system to perform a further action comprising:

synchronizing a multicast joining operation to a multicast group corresponding to the requested channel with regard to a next decodable frame of the requested channel (see col. 6, lines 16-30; col. 8, lines 14-26).

As to claim 53, Mao discloses the system as recited in claim 52, wherein the processor-executable instructions (e.g., element management system 13 which is software based) are adapted to cause the system to perform a further action comprising:

buffering (e.g., buffer 50 stores video frame for each channel) a video stream portion of a video stream that is associated with the requested channel (see col. 8, lines 36-42);

wherein the action of synchronizing comprises an action of determining when the next decodable frame is present within the buffered video stream portion of the video stream that is associated with the requested channel (e.g., processor 55 always pointing to an I frame), the next decodable frame comprising a next intra frame (e.g., I frame) (see col. 8, lines 36-51).

As to claim 54, Mao discloses the system as recited in claim 52, wherein the processor-executable instructions (e.g., element management system 13 which is software based) are adapted to cause the system to perform a further action comprising:

buffering (e.g., buffer 50 stores minimum fifteen frames for each channel) a video stream portion of a video stream, which is associated with the requested channel, to a length that at least equals a sum of a multicast joining time and an intra frame interval duration (see col. 8, lines 36-42);

wherein the action of synchronizing comprises an action of determining when the next decodable frame is entering the multicast joining time part of the buffered video stream portion of the video stream (e.g., processor 55 always pointing to an I frame), the next decodable frame comprising a next non-intra frame (see col. 8, lines 27-51).

As to claim 55, Mao discloses the system as recited in claim 52, wherein the processor-executable instructions (e.g., element management system 13 which is software based) are adapted to cause the system to perform a further action comprising:

issuing a join command (e.g., confirmation signal) responsive to the synchronizing (see col. 6, lines 16-29).

6. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mao in view of Reitmeier (Patent # US 6118498), and further in view of Lin et al. (Patent # US 6738980).

As to Claim 56, Mao discloses a method for fast channel changing in multicast video distribution architecture, the method comprising:

sending a channel change request to a server, the channel change request indicating a requested channel, the server buffering a multicast video stream segment, the buffered multicast video stream segment including a first retained intra frame and a second retained intra frame, the first retained intra frame being before the second

retained intra frame in the buffered multicast video stream segment (e.g., FIFO buffer 50 stores I frame; Fig. 6, 7) (see col. 8, lines 14-36), the requested channel corresponding to a multicast group and the buffered multicast video stream segment corresponding to the requested channel (e.g., broadband digital terminal (BDT) 12 receives channel change request from user) (see col. 5, lines 51-65);

receiving a retained intra frame for the requested channel as a unicast communication (e.g., receives I frame from channel change server 10) (see col. 8, lines 36-51), wherein

Mao fails to disclose statically display I frame.

Reitmeier discloses statically display I frame (e.g., display still image of I frame during channel change) (see col. 9, lines 31-54; Fig. 3).

switching from statically displaying the received retained intra frame to displaying the portion of the multicast video stream (e.g., display requested channel) (see col. 9, line 31-col. 10, line 27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to display static I frame as taught by Reitmeier to the channel change system of Mao as modified by Emura in order to provide a method and apparatus for providing a rapid, or seemingly rapid, channel change or channel acquisition capability in a ATSC television receiver (see col. 2, lines 8-11).

Mao and Reitmeier fail to disclose based on the request time to select which I frame as jointing frame.

Lin discloses if a first next decodable non-intra frame after the first retained intra frame is at least a joining time after a send point of the buffered multicast video stream segment, the transmitted retained intra frame is the first retained intra frame and the first next decodable non-intra frame after the first retained intra frame is a joining frame (e.g., if the requested frame is frame 11, server selects I-frame 14 and succeeding P-frames 13-11 to transmit; Fig. 3b) (see col. 4, lines 48-63), and

if the first next decodable non-intra frame after the first retained intra frame is less than the joining time after the send point of the buffered multicast video stream segment, the transmitted retained intra frame is the second retained intra frame and a second next decodable non-intra frame after the second retained intra frame is the jointing frame (e.g., if the requested frame is frame 6, server selects I-frame 0 and succeeding P-frames 1-6 to transmit; Fig. 3b) (see col. 4, lines 48-63); and

receiving as a multicast communication a portion of the multicast video stream corresponding to the requested channel, wherein the initial multicast frame of the multicast video stream received is the joining frame, the portion including a plurality of consecutive multicast frames of the multicast video stream (e.g., P-frames 13-11 and 1-6) (see col. 4, line 18-col. 5, line 29; Fig. 3a, 3b, 3c).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide select I frame as taught by Lin to the channel change system of Mao as modified by Reitmeier in order to provide a method minimizing extra network traffic and video decoder complexity, and retaining a desirable quality of decoded pictures (see col. 2, lines 35-37).

7. Claims 1-3, 6, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mao in view of Emura, further in view of Reitmeier (Patent # US 6118498), and further in view of Lin et al. (Patent # US 6738980).

As to Claim 1, Mao discloses a method for fast channel changing in a multicast video distribution architecture, the method comprising:

buffering a multicast video stream segment, the buffered multicast video stream segment including a first retained intra frame and a second retained intra frame, the first retained intra frame being before the second retained intra frame in the buffered multicast video stream segment (e.g., FIFO buffer 50 stores I frame; Fig. 6, 7) (see col. 8, lines 14-36);

detecting a channel change request that indicates a requested channel, the requested channel corresponding to the buffered multicast video stream segment (e.g., broadband digital terminal (BDT) 12 receives channel change request from user) (see col. 5, lines 51-65);

Mao does not specifically disclose transmitting the extracted retained intra frame and no dependent frames to the particular client using a unicast communication.

Emura discloses transmitting the extracted retained intra frame (e.g., keyframe) and no dependent frames to the particular client using a unicast communication (see col. 16, line 66 through col. 17, line 20; Fig. 3B, 14, 16A).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit retained intra frame and no dependent frames as taught by Emura to the channel change system of Mao in order to perform a high-speed playback at a playback speed requested from a terminal apparatus (see col. 6, lines 29-32).

Mao and Emura fail to disclose statically display I frame.

Reitmeier discloses statically display I frame (e.g., display still image of I frame during channel change) (see col. 9, lines 31-54; Fig. 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to display static I frame as taught by Reitmeier to the channel change system of Mao as modified by Emura in order to provide a method and apparatus for providing a rapid, or seemingly rapid, channel change or channel acquisition capability in a ATSC television receiver (see col. 2, lines 8-11).

Mao, Emura, and Reitmeier fail to disclose based on the request time to select which I frame as jointing frame.

Lin discloses if a first next decodable non-intra frame after the first retained intra frame is at least a joining time after a send point of the buffered multicast video stream segment, the transmitted retained intra frame is the first retained intra frame and the first next decodable non-intra frame after the first retained intra frame is a joining frame (e.g., if the requested frame is frame 11, server selects I-frame 14 and succeeding P-frames 13-11 to transmit; Fig. 3b) (see col. 4, lines 48-63), and

if the first next decodable non-intra frame after the first retained intra frame is less than the joining time after the send point of the buffered multicast video stream segment, the transmitted retained intra frame is the second retained intra frame and a second next decodable non-intra frame after the second retained intra frame is the jointing frame (e.g., if the requested frame is frame 6, server selects I-frame 0 and succeeding P-frames 1-6 to transmit; Fig. 3b) (see col. 4, lines 48-63); and

synchronizing a multicast joining operation to the multicast group corresponding to the requested channel, wherein synchronizing includes ensuring a first multicast frame after the multicast joining operation is the joining frame (e.g., P-frames 13 and 1) (see col. 4, line 18-col. 5, line 29; Fig. 3a, 3b, 3c).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide select I frame as taught by Lin to the channel change system of Mao as modified by Emura and Reitmeier in order to provide a method minimizing extra network traffic and video decoder complexity, and retaining a desirable quality of decoded pictures (see col. 2, lines 35-37).

As to Claim 2, Mao discloses the method as recited in claim 1, further comprising:

caching at least one previous intra frame for each channel of a plurality of channels as a set of cached intra frames; and

retrieving, responsive to the detecting, the retained intra frame for the requested channel from the set of cached intra frames, the retained intra frame comprising a

previous intra frame (e.g., FIFO buffer 50 stores I frame; Fig. 6, 7) (see col. 8, lines 14-36).

As to Claim 3, Mao discloses the method as recited in claim 1, wherein:

the detecting comprises detecting the channel change request from a particular client (e.g., broadband digital terminal (BDT) 12 receives channel change request from user) (see col. 5, lines 51-65); and

the transmitting comprises transmitting the retained intra frame to the particular client (e.g., channel changer 10 stores minimum one I frame and fourteen P and B frames, when subscriber request channel change, channel change server 10 transmit buffered I frame and P and B frames of requested channel to subscriber, synchronize subscriber with broadcasting video signal) (see col. 5, lines 51-65; col. 8, line 36-col. 9, line 25).

As to claim 6, Mao discloses the method as recited in claim 4, further comprising: buffering a video stream portion (e.g., buffer 50 stores minimum fifteen frames for each channel), wherein the synchronizing comprises determining when the retained intra frame reaches a joining time (e.g., transmitting time) of the buffered video stream portion (e.g., processor 55 always pointing an I frame on buffer 50) (see col. 8, lines 36-51).

As to claim 12, Mao discloses One or more processor-accessible media comprising processor-executable instructions that (e.g., element management system 13 which is software based), when executed, direct an apparatus to perform the method as recited in claim 1 (see col. 3, lines 34-41).

8. Claims 16, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mao in view of Emura, further in view of Reitmeier, and further in view of Jerding et al. (Pub # US 2005/0240961 A1).

As to claim 26, Mao discloses the channel change server as recited in claim 23, further comprising:

a join command issuer (e.g., BDT 12) that is adapted to send a join instruction message (e.g., confirmation signal) to the particular client, the join instruction message stipulating (see col. 9, lines 9-25).

Emura discloses transmitting a retained intra frame (e.g., keyframe) and no dependent frames for a requested channel as a unicast communication (see col. 16, line 66 through col. 17, line 20).

Mao, Emura and Reitmeier fail to disclose client transmit a join message to a replication point.

Jerding discloses an appointed time (e.g., after respond message 133 is received) at which the particular client is to transmit a join message (e.g., message 133; Fig. 4I) to a replication point (see paragraph 0066).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a client respond message as taught by Jerding to the channel change system of Mao as modified by Emura and because the program can suspend the provision of the motion video presentation responsive to a first user input and provide a promotional motion video presentation to the user responsive to the first user input (see paragraph 0010).

As to claim 16, it contains the limitations of claim 26 and is analyzed as previously discussed with respect to claim 26 above.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cooper (Pub # US 2004/0003399 A1) is cited to teach channel surfing.

Baldwin (Pub # US 2004/0255328 A1) is cited to teach fast start up for video streaming.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jun Fei Zhong whose telephone number is 571-270-1708. The examiner can normally be reached on Mon-Fri, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on 571-272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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JFZ
7/3/2008

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